

## VALUE ENGINEERING PROPOSAL

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DESCRIPTION: Provide Spare Gates to Maintain Navigation Reliability

### ORIGINAL DESIGN:

New construction planning and programming does not include spare gates as part of the current project. Each set of gate is estimated at \$2.5 million. An emergency bulkhead is provided for future gate maintenance, repair or replacement. Project benefits are estimated at \$800,000 per day.

### PROPOSED DESIGN:

It is recommended that a set of spare gate be incorporated into the current project. Spare gates can be analyzed and justified by the value of navigation benefits and economy of construction of spare gate as part of the original gate construction package.

### ADVANTAGES:

1. Spare gates assure optimal navigation benefits.
2. Construction economy is expected if gates are provided as part of original project gate construction.
3. Funding services may consider initial construction authorization or be directly industry funded.

### DISADVANTAGES:

Added project cost.

### JUSTIFICATION:

A set of spare gates appears to be readily justified by navigation benefits. At \$800,000 per day, the \$2.5 million cost for extra gates is warranted. Also a reduction in unit cost is realized if six gates are constructed as part of the original contract. Likewise, the future independent construction of spare gates has added cost for construction set-up, transportation, delivery, reduced work, scope, learning curve, etc. An example of cost for spare gates and loss of navigation for a 2-week period is used for sake of analysis. Further study of risk and economic benefits appears to be justified.

COST ESTIMATE WORKSHEET					
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DELETIONS					
ITEM	UNITS	QUANTITY	UNIT COST	TOTAL	